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BOOK REVIEW

Popper's debt to psychology

Stefano Gattei: Karl Popper's philosophy of science: rationality without foundations. Routledge, London, 2009, 137 pp, £85.00 HB

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Compared with other influential philosophers, remarkably few studies have been devoted to Karl Popper. To be sure, Popper's theory of falsification has been explained and criticized in many books and journals. This also applies to his political views as developed in the influential two volume *The Open Society and its Enemies*. Yet there is much more to Popper's philosophy than these two icons of 20th century thinking suggest.

In his little book, *Karl Popper's Philosophy of Science: Rationality without Foundations*, Stefano Gattei presents a full picture of Popper's work in psychology, epistemology, metaphysics and even ethics. He deals with Popper's early and until recently largely unpublished writings in psychology, his solution of the problems of induction and demarcation, the theory of probability, evolutionary epistemology and the theory of language. The book also includes a separate chapter devoted to a comparison of Popper and Kuhn regarding their different views of rationality.

The author writes clearly and carefully. Yet it is unclear for which purpose the book has been written. This is surprising for a Popperian, as Gattei definitely seems to be, because as Popper never gets tired of emphasizing science and philosophy always start with problems. Yet the book neither starts from a historical problem concerning Popper's writings nor a systematic problem concerning the (critical) evaluation of Popper's philosophy or his place in recent philosophy of science. Popper's work on falsification certainly has struck a chord within the scientific community – Popper is one of the few philosophers ever to have become a Fellow of the Royal Society, an honor usually reserved for eminent scientists—but his views are more controversial in the philosophical world. This is because many philosophers feel that his account of science signally fails to solve the problem with which he begins, namely, the problem of induction. The central objection to his

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solution of the problem of induction is that it only accounts for negative scientific knowledge, as opposed to positive knowledge. Popper points out that a single counterexample can show us that a scientific theory is wrong, but he says nothing about what can show us that a scientific theory is right. Yet it is positive knowledge of this latter kind that makes science important. The problem of induction is essentially the problem of how we can base judgments about the future on evidence about the past. In most cases it is more rational to believe a proposition based on induction than one that is not so based, e.g. 'When I jump from this tenth floor I will die', 'When I jump from this tenth floor I will fly'. Popper's denial of the rational superiority of the first proposition over the second can hardly be regarded as a solution to the problem of induction; it is rather a refusal to recognize it in the first place.

Even if it fails to deal with induction, Popper's philosophy of science does have some strengths as a description of pure scientific practice. Especially relevant is Popper's 'tetradic schema' of the method by conjectures and refutations. According to this method, science always starts from a problem or a conjecture, next advances to a tentative theory which, in the third stage of the schema, is subjected to error elimination, after which a new problem or a new version of the old problem emerges. Gattei discusses this schema in his third chapter, on metaphysics, but in fact it is already at work in Popper's early writings on falsification, and even, as I have shown elsewhere (ter Hark 1993, 2004) in his psychological writings before his 'coming out' as a philosopher of science.

Gattei discusses Popper's work in psychology but, as he himself concedes, his analysis is largely second hand relying on the work by Wettersten (1992), Hacohen (2000) and me. He fails to mention my 1993 article, however, thereby suggesting that my contribution to a proper understanding of the relation between psychology and logic in Popper's philosophy of science is second to that of Wettersten and Hacohen. But in my 1993 article, I presented the first detailed comparison of Popper's dissertation 'Zur Methodenfrage der Denkpsychologie' (1928) and the psychology of thinking on which it was based, Otto Selz's *Denkpsychologie*, and to a lesser extent the related work of Karl Buehler. Otto Selz's (1913, 1922) theory of 'schematic anticipations' was the first encompassing theory of cognitive processes. Young Popper showed precocious awareness in appropriating its insights, as well as its implications for a 'deductive epistemology', long before Selz was recognized by modern cognitive science, notably Allen Newell and Herbert Simon, in the early 1950s. Aided by Selz's theory of schematic anticipations, Popper gradually came to defend the view that before inductive repetition even can set in, the organism already actively has put forward dogmatic trials which, like schematic anticipations, operate in a limited search domain and are ultimately defined by their serviceability to life. Drawing on the insights of contemporary *Denkpsychologie*, Popper concluded that psychologically induction does not exist.

The (psychological) problem of induction therefore has been a genuine problem to the young Popper, prior to and independent of the "two fundamental problems of epistemology," i.e. (logical) induction and demarcation with which Popper's philosophy begins. For rather than having laid the blueprint for an as yet non-existent deductive *psychology* of knowledge, as Popper claims in his *Die beiden*

Grundprobleme der Erkenntnistheorie (1979), his deductive epistemology clearly emerged in the process of appropriating and integrating Selz's theory of anticipations into the deductive operations of philosophical reason. Indeed, only in shaking off his earlier sensualistic psychology of knowledge, replacing it by a theory of anticipations, Popper also abandoned his inductive stance in methodology and develops his well-known deductive theory. Accordingly, it is not so much the psychology of anticipations which is new in Popper as the specific linkage he establishes between, on the one hand, the classical epistemological notions of synthetic a priori knowledge and, on the other, the (Selzian) notion of anticipation. Anticipations, he claimed, are forms of synthetic a priori knowledge, but a priori in a genetic sense only; anticipations can be refuted a posteriori. It is precisely this (psychological) notion of a priori knowledge—of anticipations—to which Popper appealed in his attempt, in the philosophical section in *Die beiden Grundprobleme* preceding the sketch of a deductive psychology, to force a breakthrough in the deadlock between classical rationalism and classical empiricism. He thereby made room for one of his most characteristic (and valuable) ideas, namely the hypothetical and fallible nature of all human knowledge. As he (1979, 106) put this idea there: the most general axioms of natural science are formulated without logical or empirical justification, but "in contrast to rationalism they are not accepted as a priori true (in virtue of their evidence), but as merely problematic, unfounded anticipations or tentative hypotheses. Their verification or refutation proceeds, strictly empirical, only on the basis of experience: by deducing propositions (predictions) which can immediately be checked empirically." This "deductive-empiricism" is clearly a synthesis of the Selzian emphasis on the genetic priority of tentative and risky anticipations in problem solving and the epistemological requirement that justifying proceeds on the basis of experience, and hence an unmistakable sign of the interaction between Popper's psychological and philosophical theory of knowledge in the early 1930s.

What all this strongly suggests therefore is that Popper, rather than transferring his deductive epistemology to an unexplored field in the psychology of knowledge, recognized the deep analogy between Selzian anticipations and (scientific) hypotheses, and in particular its enormous potential for criticizing alternative epistemological theories in philosophy. What it also shows is that Popper's philosophy of science is closer to psychology than the vehement anti-psychologistic statements with which it is peppered suggest. This tacit psychological dimension of Popper's writings is perhaps also what has attracted so many scientists and repelled 'logicistic' philosophers.

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